

Trend Study 10R-10-00

Study site name: Winter Ridge Livestock Exclosure .

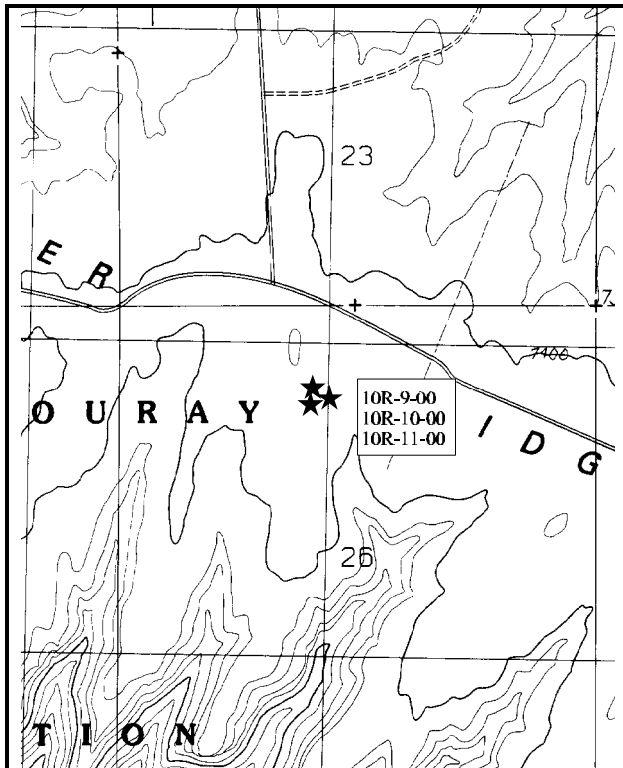
Range Type: Big Sagebrush

Compass bearing: Frequency baseline 275°M.

Footmark (first frame placement) 5 feet. Frequency belt placement; line 1 (11 & 71ft), line 2 (34 & 95ft), line 3 (59ft).

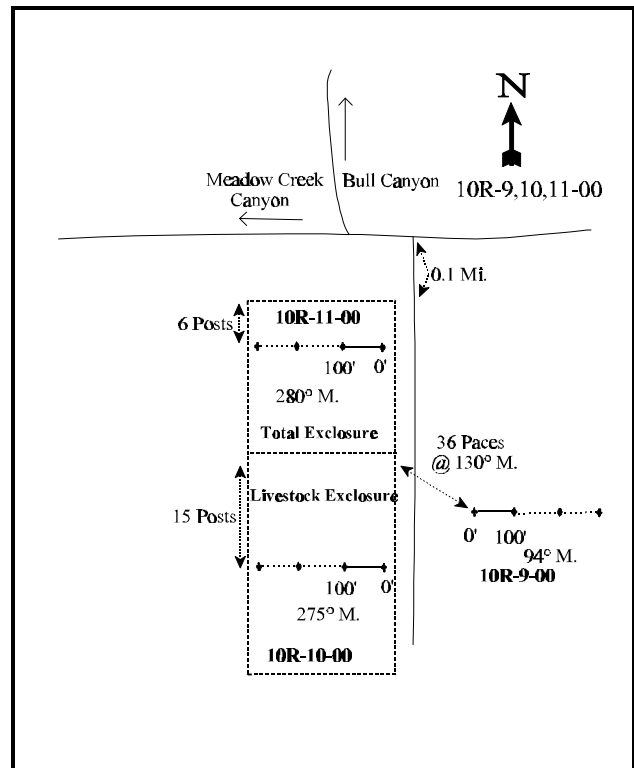
LOCATION DESCRIPTION

From the intersection where Meadow Creek Canyon and Bull Canyon meet, take the road to the south. Go 0.1 miles to the Winter Ridge Exclosure. Go to the northwest corner of the livestock part of the exclosure. From here walk down 15 posts and the 300-foot stake is to the east. The 0-foot stake is on the east end and marked by browse tag number 76.



Map name: Tenmile Canyon North

Township 15S, Range 21 E, Section 26



Diagrammatic Sketch

UTM. 4371942.223 N, 625694.757 E

DISCUSSION

Trend Study 10R-10

The Winter Ridge Livestock Exclosure study is located within the Winter Ridge livestock exclosure which excludes livestock use. The exclosure was constructed in 1964 and the trend study established in 1997. The site has a mild slope of 5% with a westerly aspect and an elevation of 7,200 feet. Pellet group data indicated high elk use within the livestock exclosure in 1997 with 100 elk days use/acre (247 edu/ha). Deer use was only 4 days use/acre (10 ddu/ha). Data from the 2000 reading estimated a lower use of 28 elk days use/acre (69 edu/ha). Pellet groups appear to be from fall and winter use. The decline in use in this area is probably due to the mild winters of the past few years.

Soil in the exclosure is moderately deep with an effective rooting depth estimated at nearly 16 inches. It has a loam texture and neutral soil reaction (pH of 7.2). Phosphorus and potassium are both low at 5.4 and 3.2 ppm respectively. Values less than 10 ppm for phosphorus and 70 ppm for potassium may limit normal plant growth and development. Percent bare ground is fairly high at about 31%. Some soil pedestaling is evident in the shrub interspaces, although current erosion appears minimal.

As with the surrounding mountain big sagebrush community outside of the exclosure, sagebrush within the exclosure has a mostly mature age structure. Sagebrush within the exclosure are noticeably larger than the plants sampled on the outside. They show light to moderate hedging. Percent decadence was estimated at 31% in 1997 with 33% of those sagebrush classified as dying (vigor class 4). In 2000, percent decadence declined to 23% but 67% (720 plants/acre) of those were classified as dying. Young plants currently ('00) number only 520 plants/acre. The only other common browse on the site include dwarf and stickyleaf low rabbitbrush, and broom snakeweed.

Grasses are abundant and diverse. Thickspike wheatgrass, prairie Junegrass, mutton bluegrass, and Sandberg bluegrass are all abundant. Forbs are diverse yet few species are very abundant. The most common forb is desert phlox which currently ('00) provides 53% of the forb cover.

1997 APPARENT TREND ASSESSMENT

There is some slight rill erosion apparent in the shrub interspaces. As with most of the surrounding area, the soil is most vulnerable in the unprotected interspaces between the mountain big sagebrush. Cryptogams also protect the soil and could be used as an indicator of condition in the future. Mountain big sagebrush is the dominate browse with an overly mature age structure and very low biotic potential (# of seedlings). At this time there does not appear to be enough seedling or young plants present to replace the decadent and/or dying population. Other browse are present but in low densities. Grass accounts for three-fourths of the herbaceous cover with muttongrass being the most abundant. No annual forbs are present and the perennial forbs consist of primarily low growing species that provide little forage.

2000 TREND ASSESSMENT

Trend for soil is considered stable with similar amounts of bare ground estimated in 1997 and 2000. Vegetation and litter cover are abundant and adequate to protect the soil from significant erosion events. Trend for the key browse species, mountain big sagebrush, is stable. Use of the sagebrush is similar to 1997 levels. Percent decadence declined slightly, however the proportion of plants displaying poor vigor increased from 10% to 23% due to drought conditions. Density of young plants have increased, although there are currently not enough to replace decadent sagebrush that appear to be dying. Another unfavorable factor is the increase in broom snakeweed which occurred rarely in 1997. Now it numbers 1,240 plants/acre and 44% of these are young

plants. Trend for the herbaceous understory is down slightly due to a decline in the sum of nested frequency of perennial grasses and forbs. Mutton bluegrass was the most abundant grass on the site in 1997 with a quadrat frequency of 93% and a cover value of 8%. It has since declined significantly to a quadrat frequency of 56% and a cover value of less than 5%. All other grass frequencies remained similar. Sum of nested frequency of perennial forbs declined to less than half of the 1997 level.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - down slightly (2)

HERBACEOUS TRENDS --

Herd unit 10R, Study no: 10

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'97	'00	'97	'00	'97	'00
G	Agropyron dasystachyum	226	227	73	73	.86	3.01
G	Bouteloua gracilis	17	15	7	5	.28	.51
G	Koeleria cristata	230	255	72	67	3.71	10.16
G	Oryzopsis hymenoides	-	6	-	2	-	.30
G	Poa fendleriana	299	*158	93	56	7.85	3.38
G	Poa secunda	99	99	40	33	1.83	1.02
G	Stipa comata	6	10	3	6	.06	.13
G	Stipa lettermani	3	-	1	-	.15	-
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		880	770	289	242	14.76	18.53
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F	Antennaria rosea	15	18	6	9	.15	.11
F	Arabis spp.	11	2	6	2	.03	.01
F	Astragalus convallarius	18	5	7	3	.06	.01
F	Castilleja linariaefolia	41	*7	25	3	.69	.01
F	Crepis acuminata	22	*10	11	6	.33	.25
F	Cryptantha spp.	5	14	3	5	.01	.07
F	Erigeron eatonii	35	*13	21	6	.22	.05
F	Erigeron pumilus	-	*8	-	4	-	.07
F	Lesquerella spp.	1	-	1	-	.00	-
F	Machaeranthera canescens	-	2	-	2	-	.06
F	Machaeranthera grindelioides	13	6	3	3	1.38	.06
F	Penstemon caespitosus	31	*4	10	1	.58	.15
F	Phlox austromontana	174	*55	62	26	2.32	1.12
F	Phlox longifolia	28	*-	14	-	.09	-

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'97	'00	'97	'00	'97	'00
F	Senecio multilobatus	-	3	-	2	-	.01
F	Sphaeralcea coccinea	11	12	4	6	.02	.10
Total for Annual Forbs		0	0	0	0	0	0
Total for Perennial Forbs		405	159	173	78	5.92	2.13
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* Indicates significant difference at % = 0.10

BROWSE TRENDS --

Herd unit 10R, Study no: 10

T y p e	Species	Strip Frequency		Average Cover %	
		'97	'00	'97	'00
B	Artemisia tridentata vaseyana	96	93	13.12	14.75
B	Ceratoides lanata	1	1	.03	-
B	Chrysothamnus depressus	34	34	1.22	1.37
B	Chrysothamnus viscidiflorus viscidiflorus	4	17	.09	.53
B	Gutierrezia sarothrae	2	21	.03	.04
B	Opuntia spp.	4	1	.00	-
B	Pediocactus simpsonii	0	1	.00	.00
B	Pinus edulis	-	-	.15	.00
B	Sclerocactus	-	-	-	.00
Total for Browse		141	168	14.66	16.71

BASIC COVER --

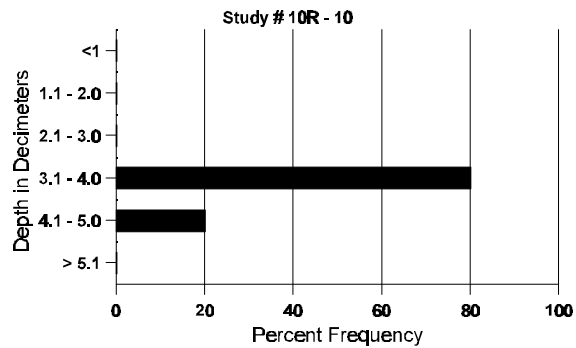
Herd unit 10R, Study no: 10

Cover Type	Nested Frequency		Average Cover %	
	'97	'00	'97	'00
Vegetation	439	446	33.37	47.15
Rock	15	-	.04	0
Pavement	72	11	.18	.04
Litter	490	488	29.62	30.74
Cryptogams	371	109	16.89	2.14
Bare Ground	386	386	30.52	31.20

SOIL ANALYSIS DATA --
Herd Unit 10R, Study no: 10

Effective rooting depth (inches)	Temp °F (depth)	PH	% sand	% silt	% clay	% OM	PPM P	PPM K	dS/m
15.8	61.2 (15.6)	7.2	35.6	38.8	25.6	1.44	5.41	3.2	0.45

Stoniness Index



PELLET GROUP FREQUENCY --
Herd unit 10R, Study no: 10

Type	Quadrat Frequency	
	'97	'00
Rabbit	9	4
Elk	49	22
Deer	-	3
Cattle	-	1

Pellet Transect			
Pellet Groups per Acre		Days Use per Acre (ha)	
'97	'00	'97	'00
17	17	N/A	N/A
1305	365	100 (247)	28 (70)
52	17	4 (10)	1 (4)
-	-	-	-

BROWSE CHARACTERISTICS --

Herd unit 10R, Study no: 10

A Y G R		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
E		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	97	17	-	-	-	-	-	-	-	-	17	-	-	-	340		17	
	00	26	1	-	-	-	-	-	-	-	26	-	1	-	540		27	
M	97	99	80	1	-	-	-	-	-	-	179	1	-	-	3600	48	54	
	00	87	58	10	-	-	-	-	-	-	144	-	11	-	3100	30	33	
D	97	63	24	3	-	-	-	-	-	-	60	-	-	30	1800		90	
	00	15	29	6	-	2	-	-	-	-	10	-	6	36	1080		54	
X	97	-	-	-	-	-	-	-	-	-	-	-	-	-	1500		75	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	1020		51	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		36%			01%			10%			-18%							
'00		38%			07%			23%										
Total Plants/Acre (excluding Dead & Seedlings)														'97	5740	Dec:	31%	
														'00	4720		23%	
Ceratoides lanata																		
M	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20	5	11	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%			+ 0%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'97	20	Dec:	-	
														'00	20		-	
Chrysothamnus depressus																		
S	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	97	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	97	103	-	-	-	-	-	-	-	-	103	-	-	-	2060	5	9	
	00	94	-	-	-	-	-	-	-	-	94	-	-	-	1880	5	7	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%			-11%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'97	2140	Dec:	-	
														'00	1900		-	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus viscidiflorus																		
Y	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	3	2	-	-	-	-	-	-	-	5	-	-	-	100		5	
M	97	4	-	-	-	-	-	-	-	-	4	-	-	-	80	13	23	
	00	19	-	-	1	-	-	-	-	-	20	-	-	-	400	7	9	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%			+80%							
'00		08%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	100	Dec:	-			
												'00	500		-			
Gutierrezia sarothrae																		
Y	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	27	-	-	-	-	-	-	-	-	27	-	-	-	540		27	
M	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20	6	7	
	00	33	-	-	1	-	-	-	-	-	34	-	-	-	680	5	5	
D	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%			+97%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	40	Dec:	0%			
												'00	1240		2%			
Opuntia spp.																		
Y	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40	2	6	
	00	1	-	-	-	-	-	-	-	-	-	-	1	-	20	1	6	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%			-75%							
'00		00%			00%			100%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	80	Dec:	-			
												'00	20		-			
Pediocactus simpsonii																		
M	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	0	Dec:	-			
												'00	20		-			